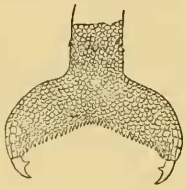
A single adult male from the Comoro Islands, 6½ inches long, of which the tail takes 3½ inches.

Rhampholeon Kerstenii.

Chamæleo Kerstenii, Peters in Von der Decken's Reisen, iii. p. 12, Taf. 1. fig. 1.



This is a second species of the genus *Rhampholeon*, each claw being provided with the characteristic accessory sharp denticle; but the spine which vertically projects from the flexor side of the toes in *R. spectrum* is absent in the present species.

One specimen from Mpwapwa is 3½ inches long, the tail measuring 1⅓ inch.

Dipsas betsileana.

Scales in 23 series, those of the vertebral series scarcely enlarged. Head very short and broad; eye very large. The loreal enters the orbit below the single præorbital; two postorbitals; seven upper labials. Black, with about thirty-four narrow yellow cross bands on the trunk; tail similarly coloured. Snout with an irregular yellow band across the frontals.

One specimen, 15½ inches long, from S.E. Betsileo, Madagascar.

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

May 12, 1880.—Robert Etheridge, Esq., F.R S., President, in the Chair.

The following communications were read:—

1. "On the Structure and Affinities of the Genus *Protospongia*, Salter." By W. J. Sollas, Esq., M.A., F.G.S.

In this paper the author described the character of the Cambrian genus *Protospongia* from the original and other specimens. In Dr. Hicks's specimen the spicules of the sponge show their original

form, when it is clear that they are not fused together into a continuous network,; they form a network only by the interlacing of their extremities. The spicules are quadriradiate, with the centre raised, so that each spicule indicates the outlines of a low four-sided pyramid, the centre being at the apex, and the four rays representing the four edges of the pyramid. The rays do not diverge at right angles; and thus the base of the pyramid is oblong, though this may be due to distortion. From some indications the author is inclined to believe that a fifth ray may have sprung from the centre of the spicule downwards. The rays of the spicules appear to be cylindrical. The spicules are generally of several sizes, the larger ones forming a framework which is filled in by the smaller forms, the latter being regularly arranged; so that the smaller ones fill up the square spaces left between the rays of the larger, and thus build up a network of square meshes gradually diminishing in size. The sponge-wall seems to have consisted of more than one layer of spicules. The spicules were probably originally siliceous; but now they consist of iron pyrites.

With regard to the systematic position of *Protospongia*, the oldest known sponge, the author remarks that similar spicules similarly arranged are to be met with in the Hexactinellidæ, the absence of one or two rays being not unusual in part of the spicules of true Hexactinellids. As the spicules are free, he would refer the sponge to Zittel's Lyssakina, which are nearly equivalent to Carter's Sarcohexactinellida.

2. "Note on *Psephophorus polygonus*, von Meyer, a new Type of Chelonian Reptile allied to the Leathery Turtles." By Prof. H. G. Seeley, F.R.S., F.G.S.

The specimen described is a portion of the shield from the anterior dorsal region, and was obtained from the later Tertiary deposits of the borders of Croatia. It was originally regarded by Von Meyer as the armour of an Edentate mammal; but it was afterwards suggested by him and Prof. Fuchs that *Sphargis* presented a nearer affinity. A keel runs along the middle of the specimen, and is regarded by the author as one of the outer folds of the shield. The dermal skeleton is made up of irregularly polygonal plates of various sizes, closely resembling those of *Sphargis*, except that each plate is almost twice as large as those of that form. The plates usually show a radiate ornament on the surface. On the underside of the slab are the remains of several vertebræ, apparently from the base of the neck; and these differ from the vertebræ of all known Chelonians in having strong transverse processes for the attachment of ribs. The neural arch, like the processes, is ankylosed to the centrum. The author considers that the dermal skeleton is not represented in the carapace of ordinary Chelonia, but is represented by the granulations on the surface of the carapace of the Trionychidæ. He is hence led to indicate three primary divisions of the Chelonian order, viz.:—1. *Aspidoche-*

lyidæ, in which the bony carapace is covered with symmetrical horny scutes, including Turtles, Emydians and Tortoises; 2. *Peltochelyidæ*, in which the bony carapace has a granular surface-structure and is covered with an undivided dermis without scutes, including only the Trionychidæ; and 3. the *Dermatochelyidæ*, in which the carapace is not developed, but is functionally represented by a bony skeleton within the skin, as in *Sphargis* and *Psephophorus*.

3. "On the Occurrence of the Glutton (*Gulo luscus*, Linn.) in the Forest-bed of Norfolk." By E. T. Newton, Esq., F.G.S.

Remains of the Glutton have hitherto been obtained only from cave-deposits. The author has lately received from Mr. R. Fitch, of Norwich, a portion of the lower jaw of this animal obtained from the Forest-bed of Mundesley, Norfolk. The specimen consists of about 2 inches of the left ramus, bearing the first true molar and the hinder half of the fourth premolar in place. The jaw is smaller than in average specimens of the recent Glutton, but presents all the characters of the species, as described in detail by the author.

4. "A Review of the Family Diastoporidæ, for the purpose of Classification." By George Robert Vine, Esq. Communicated by Prof. Duncan, F.R.S., F.G.S.

This family of the Cyclostomatous Polyzoa, never very prolific, has representatives from the Lower-Silurian era to the present time, and is now northern and of deep-sea habit. The author discusses the limits of the family, and gives a list of the recent and fossil genera and species included in it. He points out that there are important differences in the Palæozoic forms, several of which, though he leaves them provisionally among the Diastoporidæ, he considers, on fuller examination, will have to be removed. The author describes the characteristics of some Palæozoic genera of true Diastoporidæ.

5. "On Annelid Jaws from the Wenlock and Ludlow Formations of the West of England." By G. J. Hinde, Esq., F.G.S.

Referring to his paper on Annelid-jaws from the Palæozoic rocks of Canada and Scotland (Quart. Journ. Geol. Soc. vol. xxxv. p. 370), the author in this paper announced the discovery of similar objects in the Silurian deposits of Dudley, Much Wenlock, Iron Bridge, Stoke Edith, and near Ludlow. He noticed from these Silurian rocks seven species of *Eunicites*, two of which, *E. curtus* and *E. unguiculus* from the Wenlock, are new; nine species of *Œnonites*, of which six, namely *Œ. regularis*, *naviformis*, *præacutus*, and *tubulatus* from the Wenlock, *Œ. insignificans* from the Upper Ludlow, and *Œ. aspersans* from the Wenlock and Upper Ludlow, are described as new; seven species of *Arabellites*, four of which are new, namely *A. extensus*, *spicatus*, and *obtusus* from the Wenlock, and *A. anglicus* from the Wenlock and Upper Ludlow; further, *Lumbriconereites*

basalis, *Staurocephalites semula*, sp. n., and *Nereidavus antiquus*, sp. n., from the Wenlock group. Including varieties, 27 forms are noticed by the author, of which 21 are peculiar to the Wenlock group and 2 to the Ludlow, while 4 are common to the two groups. In the Wenlock there are 8 forms already described from American rocks, 3 occurring in the Cincinnati group, 3 in the Clinton, and 2 in both groups of rocks. Of the Ludlow forms, 2 occur in the Cincinnati group, and 1 of these also in the Clinton.

June 23, 1880.—Robert Etheridge, Esq., F.R.S., President, in the Chair.

The following communications were read:—

1. "On the Skull of an *Ichthyosaurus* from the Lias of Whitby, apparently indicating a new species (*I. Zetlandicus*, Seeley), preserved in the Woodwardian Museum of the University of Cambridge." By Prof. H. G. Seeley, F.R.S., F.G.S.

In this paper a very fine skull of *Ichthyosaurus* was described in detail. From the broad triangular form of the skull and the great distance between the orbits, the author is led to regard it as belonging to a species distinct from any that have hitherto been described. As it was presented to the Woodwardian Museum by the Earl of Zetland, he proposed to name it *Ichthyosaurus Zetlandicus*.

2. "Note on the Cranial Characters of a large Teleosaur from the Whitby Lias, preserved in the Woodwardian Museum of the University of Cambridge." By Prof. H. G. Seeley, F.R.S., F.G.S.

The author described a somewhat fragmentary cranium from the Whitby Lias, which has been sawn through along the median line so as to expose the brain-cavity. From the characters thus revealed he is led to infer that the resemblance of the Teleosaurs to the existing Crocodilia has been somewhat too strongly insisted upon. From the peculiarities of the prootic bone, and of the tympanic region, and the general shape of the brain-case, the author is led to regard the fragment as indicating a new species, for which he proposes the name of *Teleosaurus eucephalus*.

3. "On new Erian (Devonian) Plants." By J. W. Dawson, LL.D., F.R.S., F.G.S.

The paper first referred to recent publications bearing on the Erian (Devonian) flora of N.E. America, and then proceeded to describe new species from New York and New Brunswick, and to notice others from Queensland, Australia, and Scotland.

The first and most interesting is a small Tree Fern, *Asteropteris noveboracensis*, characterized by an axial cylinder composed of radiating vertical plates of scalariform tissue imbedded in parenchyma, surrounded by an outer cylinder penetrated with leaf-bundles with

dumbbell-shaped vascular centres. The specimen was collected by Mr. B. Wright, in the Upper Devonian of New York.

Another new fern from New York is a species of *Equisetides* (*E. Wrightianum*), showing a hairy or bristly surface, and sheaths of about twelve, short, acuminate leaves.

A new and peculiar form of wood, obtained by Prof. Clarke, of Amherst College, Massachusetts, from the Devonian of New York, was described under the name *Celluloxylon primævum*. It presents some analogies with *Prototaxites* and with *Aphyllum paradoxum* of Unger.

Several new ferns were described from the well-known Middle Devonian plant-beds of St. John's, New Brunswick; and new facts were mentioned as confirmatory of the age assigned to these beds, as showing the harmony of their flora with that of the Erian of New York, and as illustrating the fact that the flora of the Middle and Upper Devonian was eminently distinguished by the number and variety of its species of ferns, both herbaceous and arborescent. It will probably be found eventually that in ferns, equisetaceous plants, and conifers the Devonian was relatively richer than the Carboniferous.

Reference was also made to a seed of the genus *Ætheotesta* of Charles Brongniart, found by the Rev. T. Broun in the Old Red Sandstone of Perthshire, Scotland, and to a species of the genus *Dicranophyllum* of Grand'-Eury, discovered by Mr. R. L. Jack, F.G.S., in the Devonian of Queensland.

In all, this paper added six or seven new types to the flora of the Erian period. Several of them belong to generic forms not previously traced further back than the Carboniferous.

The author uses the term "Erian" for that great system of formations intervening in America between the Upper Silurian and the Lower Carboniferous, and which, in the present uncertainty as to formations of this age in Great Britain, should be regarded as the type of the formations of the period. It is the "Erie Division" of the original Survey of New York, and is spread around the shores of Lake Erie, and to a great distance to the southward.

4. "On the Terminations of some Ammonites from the Inferior Oolite of Dorset and Somerset." By James Buckman, Esq., F.G.S., F.L.S.

The author referred to the figures given by D'Orbigny of Jurassic Ammonites having the mouth-termination perfect, and proceeded to describe the characters presented by complete specimens obtained by him from the Inferior Oolite of Dorsetshire and Somersetshire. He enumerated 14 species, which he classified as follows, in accordance with the nature of the terminations:—1. Termination lanceolate, *i. e.* with a lance-shaped process on each side of the mouth (*A. concavus*, *subradiatus*, *Eduardianus*); 2. Ovato-lanceolate or spathulate, *i. e.* with a spathulate process on each side of the mouth (*A. Braikenridgii*, *linguiferus*, *Sauzii*, *Martinsii*, *subcostatus*); 3. Delphinulate

"side view like that of the classic dolphin" (*A. Gervillii*); 4. Semicircular (*A. Brongniarti*, *Manselii*, *Humphresianus*); 5. Waved (*A. Moorei*, *boscensis*).

5. "On some new Cretaceous *Comatulæ*." By P. Herbert Carpenter, Esq., M.A. Communicated by Prof. P. Martin Duncan, M.B., F.R.S., F.G.S.

In this paper the author described five new species of *Antedon* from British Cretaceous deposits, two of them in the possession of the Rev. P. B. Brodie, the rest in the collection of the British Museum. The species are:—*Antedon perforata* and *A. Lundgreni*, from the Upper Chalk, Margate; *A. striata*, from the Upper Chalk, Dover; *A. laticirra*, from the Chalk of Wylye, Wiltshire; and *A. incurva*, from the Upper Greensand, Blackdown. The author further gave a tabular key to the known English Cretaceous species of *Antedon*, and in conclusion referred to certain peculiarities in the structure of these fossils, apparently subservient to the circulation of water in their interior.

6. "A Review of the Family Vinculariдæ, recent and fossil, for the purpose of Classification." By G. R. Vine, Esq. Communicated by Prof. P. M. Duncan, M.B., F.R.S., F.G.S.

The author examined in detail the insufficient description of the genus *Vincularia* by its founder Defrance, and the manner in which it has been employed by subsequent authors. He concluded that the different forms, ranging from the Carboniferous to the present day, which have been included in the genus, present no such features in common as would justify the retention of the generic or family name.

7. "On the Zones of Marine Fossils in the Calciferous Sandstone Series of Fife." By James W. Kirkby, Esq. Communicated by Prof. T. Rupert Jones, F.R.S., F.G.S.

In this paper the author described the marine beds that he has met with in the Calciferous Sandstones of the east of Fife, and traced the sequence of over 4000 feet of beds, probably all belonging to the "Cement-stone group." In the section from the west of Pittenweem to Anstruther he recognized eighteen zones, which he characterized by their contained fossils; in the section at Randerstone he distinguished eleven limestone beds; and he compared and, as far as possible, correlated the two series of deposits. Full lists of fossils were given; and the author further specially discussed the characters and distribution of the more important species.